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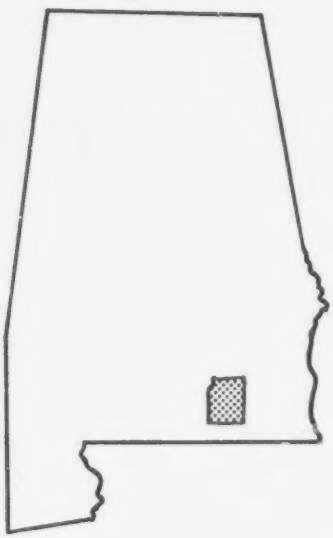
FLOOD INSURANCE STUDY

COFFEE COUNTY, ALABAMA

UNINCORPORATED AREAS



DECEMBER 5, 1990

Federal Emergency Management Agency

COMMUNITY NUMBER 010239

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

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FLOOD INSURANCE STUDY

COFFEE COUNTY,
UNINCORPORATED AREAS,
ALABAMA

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the unincorporated areas of Coffee County, Alabama, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by the U.S. Army Corps of Engineers (COE), Mobile District (the Study Contractor) for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-88-E-2739, Project Order No 5. This study was completed in February 1989.

1.3 Coordination

On August 5, 1989, an initial coordination meeting was held with representatives of FEMA, Coffee County, and the Study Contractor. Coordination has been accomplished with local officials and Federal, State, and regional agencies to secure available data.

On June 1, 1990, the results of this Flood Insurance Study were reviewed and accepted at a final coordination meeting attended by representatives of the Study Contractor, FEMA, and the community.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the unincorporated areas of Coffee County, Alabama. The area of study is shown on the Vicinity Map (Figure 1). The incorporated areas within the county were excluded from this study.

Flooding caused by overflow of the Pea River and Whitewater and Patrick Creeks was studied in detail.

Areas having low development potential or minimal flood hazards were previously studied using approximate analyses. The results were shown on the Flood Hazard Boundary Map for Coffee County, Alabama (Reference 1), and are incorporated into this Flood Insurance Study.

The areas studied were selected with priority given to all known flood hazard areas and areas of projected development or proposed construction through February 1994. The scope and methods of study were proposed to and agreed upon by FEMA and Coffee County.

2.2 Community Description

Coffee County is in southeastern Alabama. It is bordered on the north by Pike County, Alabama; on the east by Dale County, Alabama; on the south by Geneva County, Alabama; and on the west by Covington and Crenshaw Counties, Alabama. It is served by U.S. Highway 84; State Highways 12, 27, 51, 52, 87, 88, and 189; and CSX railroad. The 1980 population was reported to be 22,132 (Reference 2).

Topography of the study area is rolling hills with elevations ranging from 150 to 400 feet National Geodetic Vertical Datum of 1929 (NGVD).

The County area has a mild, humid climate with long, warm summers and short, cool winters. The average annual temperature is about 72 degrees Fahrenheit. Precipitation is normally plentiful in all months of the year, with an average annual rainfall of 54 to 56 inches (Reference 3). May through September are the driest months, and December through March are the wettest months.

2.3 Principal Flood Problems

Low-lying areas adjacent to the Pea River and Patrick and Whitewater Creeks are occasionally flooded.

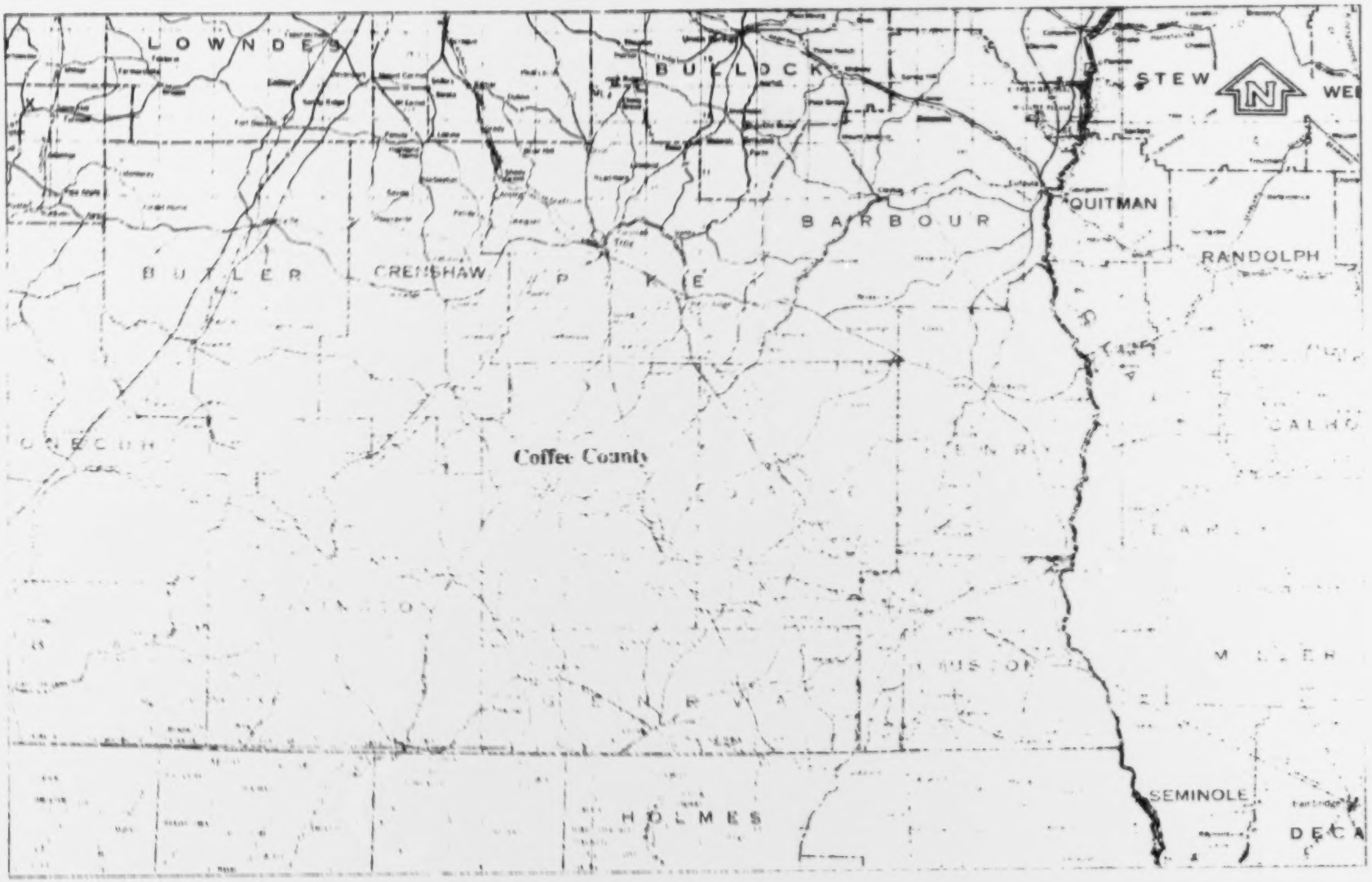


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

COFFEE COUNTY, AL
(UNINCORPORATED AREAS)

APPROXIMATE SCALE

16 0 16 32 48 MILES

VICINITY MAP

2.4 Flood Protection Measures

A 3.2 mile long levee, within the City of Elba, was constructed in 1938 by the Works Progress Administration. The Elba dam also exists on the Pea River. These facilities do not provide protection for areas in Coffee County.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that is expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40-percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60-percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each riverine flooding source studied in detail affecting the community.

USGS regional regression equations (Reference 4) were used to estimate flow frequencies for the 100-year floods along the Pea River and Whitewater and Patrick Creeks. Flows for the 500-year event were obtained by extrapolation. A regressional analysis of the gages on the Pea River upstream and downstream of the study area yielded results compatible with the discharges determined from the regional equations.

Peak discharge-drainage area relationships for the 10-, 50-, 100-, and 500-year floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 100-YEAR	500-YEAR
PEA RIVER			
about 6,600 feet downstream of confluence of Helms Mill Creek	997	59,100	90,000
just upstream of confluence of Whitewater Creek	642	45,500	69,000
WHITEWATER CREEK			
just downstream of confluence of Pea Creek	293	28,500	42,000
about 2.0 miles upstream of confluence of Pea Creek	284	28,000	41,900
PATRICK CREEK			
at mouth	9.3	3,700	5,600
just downstream of confluence of Danley Branch	7.5	3,200	4,700

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles and on the Flood Insurance Rate Map.

The profiles for selected recurrence intervals were computed using standard step backwater analysis from the HEC-2 computer program (Reference 5). Starting water-surface elevations for the stream were determined by the slope-area method. Roughness coefficients (Manning's "n") used in the hydraulic computations were chosen by engineering judgment from field inspection of the channel and floodplain. The channel "n" values ranged from 0.037 to 0.055. The overbank "n" value used was 0.15.

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals.

The hydraulic analyses for this study are based on the effects of unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in this study are shown on the maps and described in the exhibit labeled Elevation Reference Marks.

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100- and 500-year floodplain boundaries and 100-year floodway to assist communities in developing floodplain management measures.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24000 with a contour interval of 10 feet (Reference 6).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map. On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A, AE, AH, AO, A99, V, and VE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary was delineated using the Flood Hazard Boundary Map for Coffee County, Alabama (Reference 1).

4.2 Floodways

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights.

Floodways have not been shown or computed for this community. Along streams where floodways have not been computed, the community must ensure that the cumulative effect of development in the floodplain will not cause more than a 1.0-foot increase in the base flood elevations at any point within the community.

The area between the floodway and the 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood by more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown on the Floodway Schematic (Figure 2).

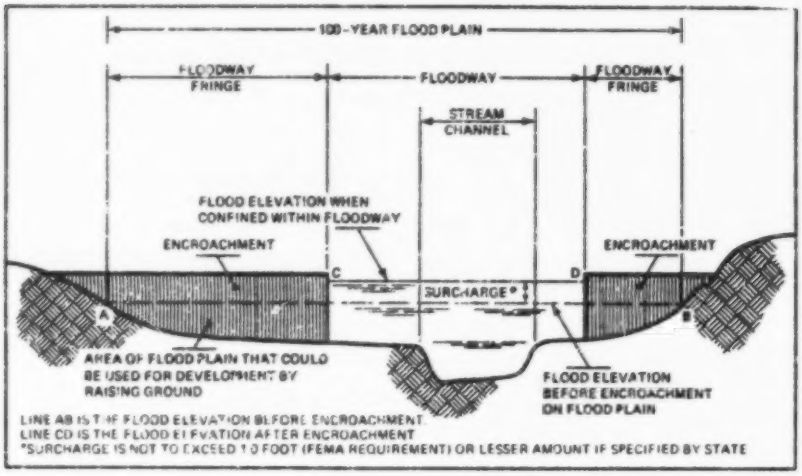

100-YEAR FLOOD PLAIN
FLOODWAY FRINGE
FLOODWAY
FLOODWAY FRINGE
STREAM CHANNEL
FLOOD ELEVATION WHEN CONFINED WITHIN FLOODWAY
ENCROACHMENT
ENCROACHMENT
C
D
SURCHARGE*
A
B
AREA OF FLOOD PLAIN THAT COULD BE USED FOR DEVELOPMENT BY RAISING GROUND
FLOOD ELEVATION BEFORE ENCROACHMENT ON FLOOD PLAIN
LINE AB IS THE FLOOD ELEVATION BEFORE ENCROACHMENT
LINE CD IS THE FLOOD ELEVATION AFTER ENCROACHMENT
*SURCHARGE IS NOT TO EXCEED 1.0 FOOT (FEMA REQUIREMENT) OR LESSER AMOUNT IF SPECIFIED BY STATE

FIGURE 2 - Floodway Schematic

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study

by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 100-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols the 100- and 500-year floodplains, the floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

7.0 OTHER STUDIES

The published Flood Insurance Rate Map for the City of Elba, Alabama (Reference 7) does not agree with this study, due to disagreements in elevations along Patrick Creek and the Pea River. If the Flood Insurance Rate Map for Elba is revised in the future, the new data from the Coffee County study will be incorporated into the revised Flood Insurance Rate Map.

The Flood Insurance Studies published for Dale County, and the City of Enterprise, Alabama (References 8 and 9), and the Flood Insurance Rate Maps printed for the Towns of New Brockton and Kinston, Alabama (References 10 and 11), agree with this study.

This Flood Insurance Study supersedes the previously printed Flood Hazard Boundary Map for Coffee County, Alabama (Reference 1).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, 1371 Peachtree Street, NE., Suite 736, Atlanta, Georgia 30309.

Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. To ensure that any user is aware of all revisions, it is advisable to contact the map repository of flood hazard data located in the community.

9.0 REFERENCES AND BIBLIOGRAPHY

1. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Coffee County, Unincorporated Areas, Alabama, January 1978.

2. U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Alabama, Washington, D.C., April 1982.

3. ----------, National and Oceanic and Atmospheric Administration, Environmental Data Services, Climatological Data for Alabama, Asheville, North Carolina.

4. U.S. Geological Survey, Water-Resources Investigations Report 84-4191, Magnitude and Frequency of Floods in Alabama.

5. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Computer Program 723-X6-L202A, Davis, California, September 1982.

6. U.S. Geological Survey, 7.5 Minute Series Topographic Maps, Scale 1:24000, Contour Interval 10 Feet: Elba, Alabama, 1968; Danleys Crossroads, Alabama, 1968; Ino, Alabama, 1968.

7. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Rate Map, City of Elba, Coffee County, Alabama, May 1976.

8. Federal Emergency Management Agency, Flood Insurance Study, Dale County, Unincorporated Areas, Alabama, July 1989.

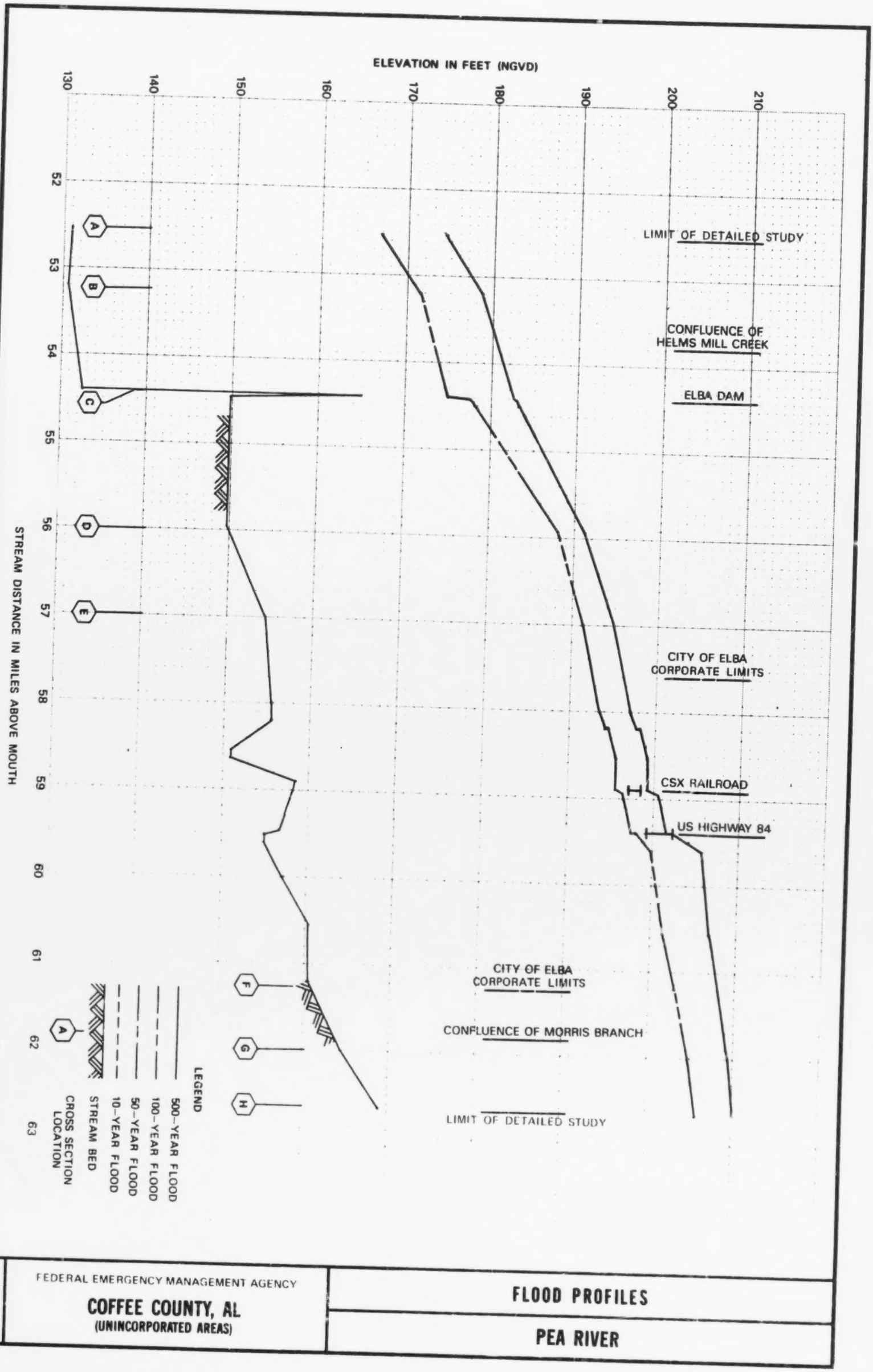
9. ----------, Federal Insurance Administration, Flood Insurance Study, City of Enterprise, Coffee County, Alabama, July 1980.

10. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Rate Map, Town of New Brockton, Coffee County, Alabama, July 1977.

11. ----------, Federal Insurance Administration, Flood Insurance Rate Map, Town of Kinston, Coffee County, Alabama, December 1977.

ELEVATION REFERENCE MARKS

REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
1	0075	226.49	chiseled square in southeast corner of culvert for Patrick Creek under County Highway 97
2	0075	187.46	40d nail along east edge of pavement of State Highway 189 located approximately 2.53 miles south of intersection of State Highway 189 and State Highway 84
3*	0075	202.54	railroad spike stamped "CC-185" set in centerline of State Highway 125 at intersection of State Highway 125 and Flat Road
4*	0075	202.45	top of southeast corner of curb on southwest corner of State Highway 189 bridge over Beaverdam Creek
5*	0075	193.99	top of southernmost flange bolt of fire hydrant located about 750 feet south along Plant Avenue from intersection of Plant Avenue and State Highway 189
6	0125	176.75	top of southeast corner of north headwall of Elba Dam on Pea River



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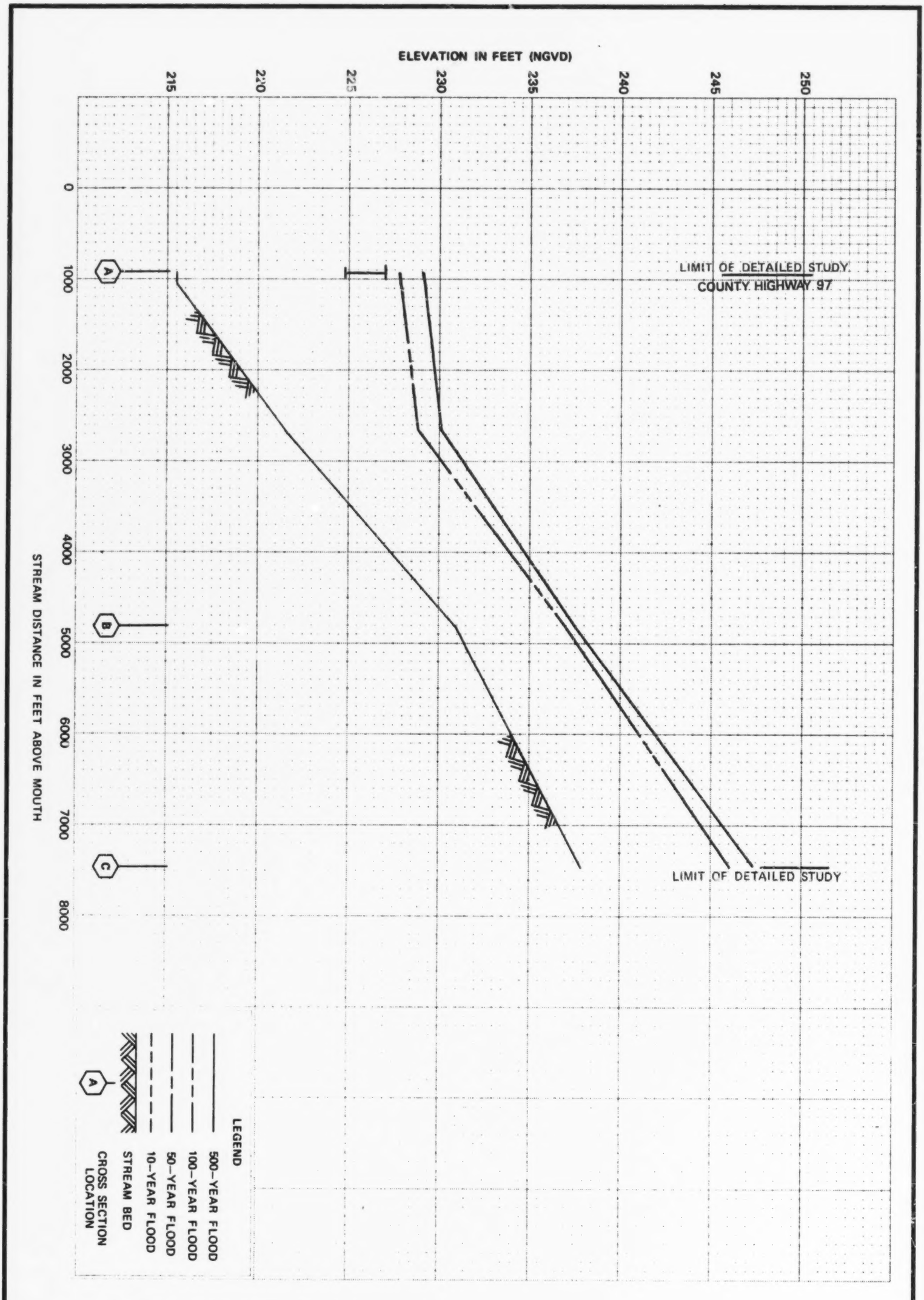
FEDERAL EMERGENCY MANAGEMENT AGENCY

COFFEE COUNTY, AL
(UNINCORPORATED AREAS)

FLOOD PROFILES

PEA RIVER



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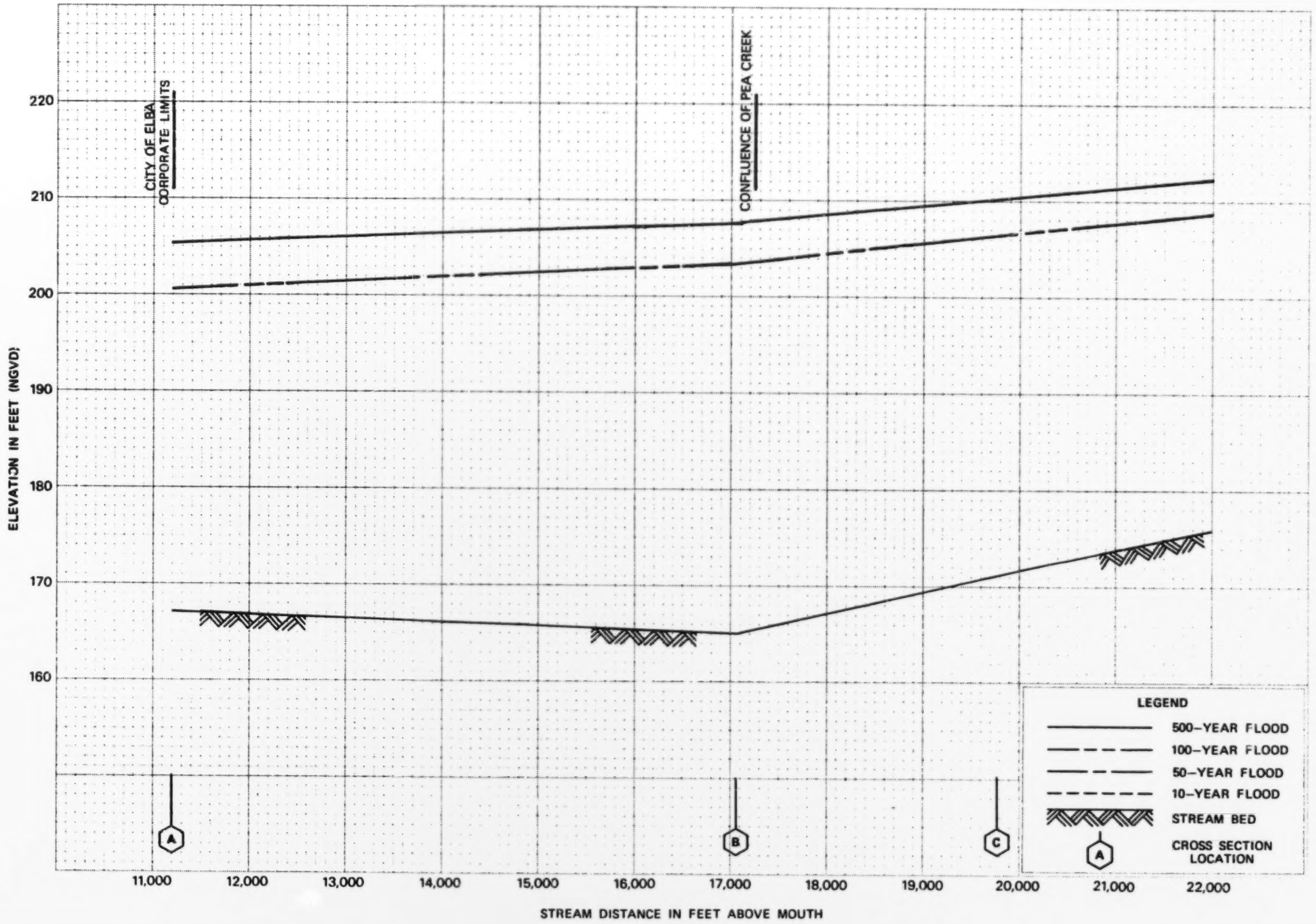
02P

FEDERAL EMERGENCY MANAGEMENT AGENCY

COFFEE COUNTY, AL
(UNINCORPORATED AREAS)

FLOOD PROFILES

PATRICK CREEK



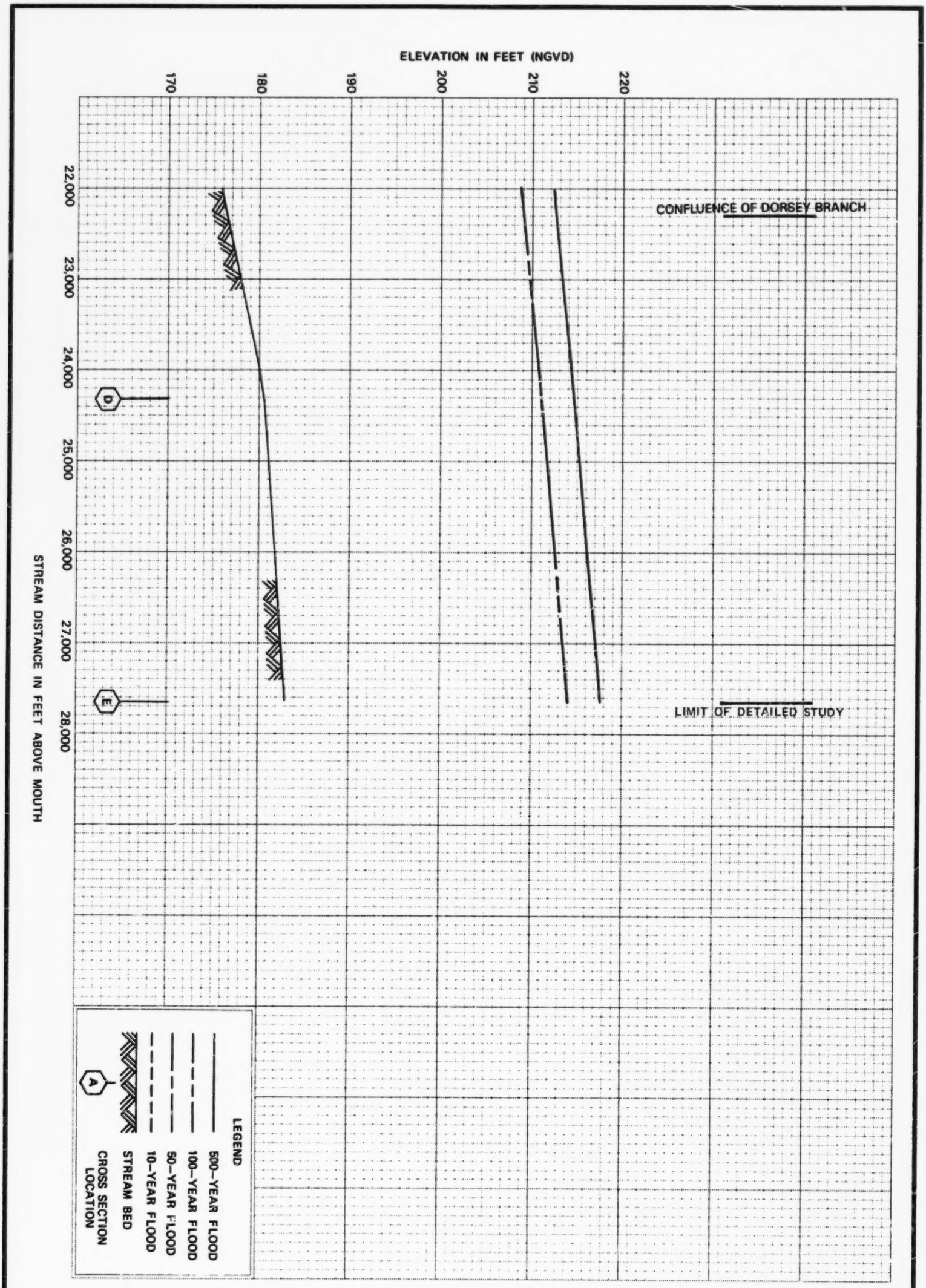
FLOOD PROFILES

WHITEWATER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

COFFEE COUNTY, AL
(UNINCORPORATED AREAS)

03P



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